

AMENDMENTS TO THE CLAIMS

1. (Previously Amended) A rotary electric motor comprising:

a rotor having a plurality of permanent magnets disposed in an annular ring configuration, the magnets alternating in magnetic polarity along an inner annular surface;

a stator of annular ring construction encompassed within the rotor and separated

5 therefrom by a radial air gap, the stator comprising:

a plurality of ferromagnetic core segments ferromagnetically isolated from each other, each of the core segments having respective coils wound thereon to form stator windings;

an outer radial periphery at the air gap; and

10 an inner radial periphery defining an inner volume; and

a controller contained within the inner volume for applying energization current to the stator windings.

2. (Original) A rotary electric motor as recited in claim 1, wherein said motor is a brushless motor and wherein said volume further comprises:

electronic switches responsive to the controller for directing current from a power supply to the stator windings.

3. (Original) A rotary electric motor as recited in claim 2, wherein the said volume further comprises a power supply.

4. (Original) A rotary electric motor as recited in claim 3, wherein the stator further comprises a rotor position sensor having an output connected to the controller.

5. (Original) A rotary electric motor as recited in claim 2, wherein each stator segment comprises a pair of poles circumferentially spaced from each other at the outer periphery and joined together by a yoke or linking portion at the inner periphery, the pair of poles having opposite magnetic polarities at the air gap when energization current is supplied to the segment
5 winding.

6. (Original) A rotary electric motor as recited in claim 5, wherein the winding of each stator segment comprises a winding portion on each stator pole, the winding portions of each pole pair being wound in opposite directions and connected in series.

7. (Original) A rotary electric motor as recited in claim 5, wherein the winding of each stator segment is formed on the yoke or linking portion.

8. (Original) A rotary electric motor as recited in claim 2, wherein the electronic switches are connected in bridge configurations, connected respectively to corresponding stator segment windings.

9. (Previously Amended) A rotary electric motor as recited in claim 8, wherein duration of the current directed to the stator windings and energization of the switches are controlled in response to signals received by the controller from a rotor position sensor.

10. (Original) A rotary electric motor as recited in claim 3, wherein said power supply comprises a plurality of replaceable batteries.

11. (Original) A rotary electric motor as recited in claim 10, wherein said batteries are rechargeable batteries capable of being recharged from an external source when removed from the stator and of being recharged by regenerative current applied by the stator segment windings.

12. (Original) A rotary electric motor as recited in claim 10, wherein said batteries are rechargeable from an external source.

13. (Original) A rotary electric motor as recited in claim 2, wherein said volume further comprises a circuit board having mounted thereon the controller and switches.

14. (Original) A rotary electric motor as recited in claim 13, wherein said controller comprises an application specific integrated circuit (ASIC).

15. (Original) A rotary electric motor as recited in claim 1, where said volume is substantially cylindrical.

Claims 16-18: Cancelled.